Antenna Test Report

Product Name: Bluetooth Module	Report No. : RF8230406039-L1-R
Product Model: JMD1102/JMD1105/JMD1106	Security Classification: Open
Version：V1.0	Total Page: 12

HAIYUN Laboratory Report

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Antenna Test Report

Equipment:	**Bluetooth Module**
Model:	**JMD1102/JMD1105/JMD1106**
Applicant:	**JOYTECH Healthcare Co., Ltd.**
Applicant address:	**No.365,Wuzhou Road311100 Hangzhou, Zhejiang ProvincePEOPLE'S REPUBLIC OF CHINA**
Manufacture:	**JOYTECH Healthcare Co., Ltd.**
Address:	**No.365,Wuzhou Road311100 Hangzhou, Zhejiang ProvincePEOPLE'S REPUBLIC OF CHINA**
Date of Receipt:	**Apr 7.2023**
Date of Test:	**Apr 1.2023~May 10.2023**
Issue Date:	**May 10.2023**
Tested by:	**Shenzhen HAIYUN Testing Co., Ltd. Laboratory**

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1.Purose & Environment

1.1 Purpose

- Meet the electrical performance index;
- Confirm the antenna scheme to meet the design requirements;

1.2 Environment

- Test Condition: the network analyzer(E5071C) and SATIMO microwave anechoic chamber
- Passive measurement results are presented

- TEST ENVIRONMENT CONDITIONS

Temperature	26.85℃	**Relative Humidity**	53.2 %
Atmosphere Pressure	101 kPa	\	\

1.3 Equipment

No.	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Temp&Humidity Recorder	Anymetre	JR900	N/A	2023/10/10
2	Network analyzer	Agilent	E5071C	MY46523716	2023/10/10
3	Analog Signal Generator	Keysight	N5173B	MY59100641	2023/10/10
	SAC+Control shielding room	SAEMC	555	N/A	2025/10/14
4	OTA Switching unit	MVG	Active Switchnig Unit	1102347-2786	NA
5	Smart-UPS	APC	RT 3000	N/A	NA

1.4 Measurement uncertainty

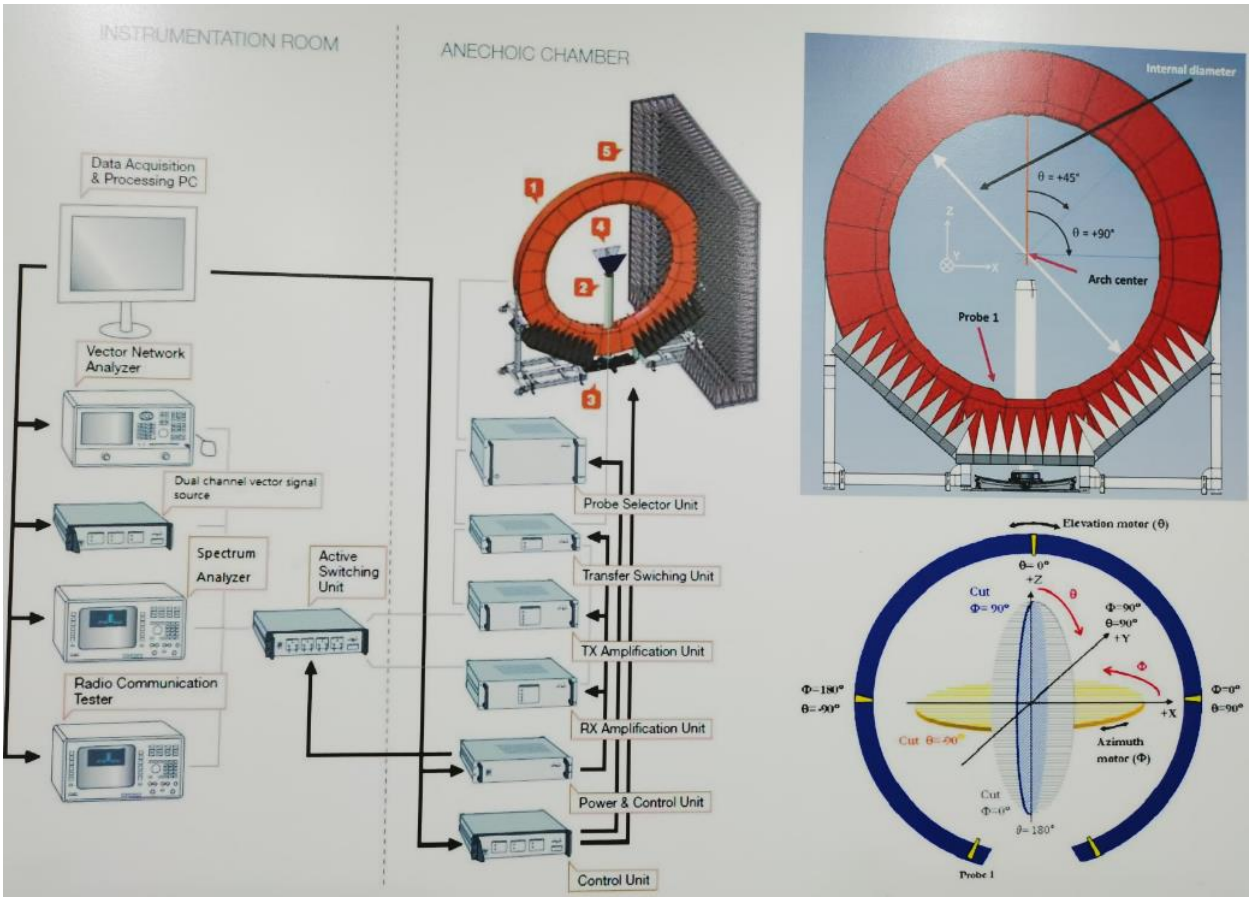
For the summary of the expanded measurement uncertainty with 95% confidence level, the expanded measurement uncertainties of TRP/TIS regulated in the Test Plan are:

Expanded Uncertainty (dB)		
Test Configuration	TRP	TIS
Free Space	2	2.3
Beside Head and Hand Right	2.4	2.6
Hand Left and Hand Right	2.2	2.6

2.Test Configuration and Test Method

2.1 Test Configuration

- Test configuration: Reference to CITA OTA distributed-axes system configuration.
- Chamber: Fully Anechoic Chamber.
- Turntable: Phi angle
- Multiple antenna loop: Theta angle
- Test system configuration diagram:

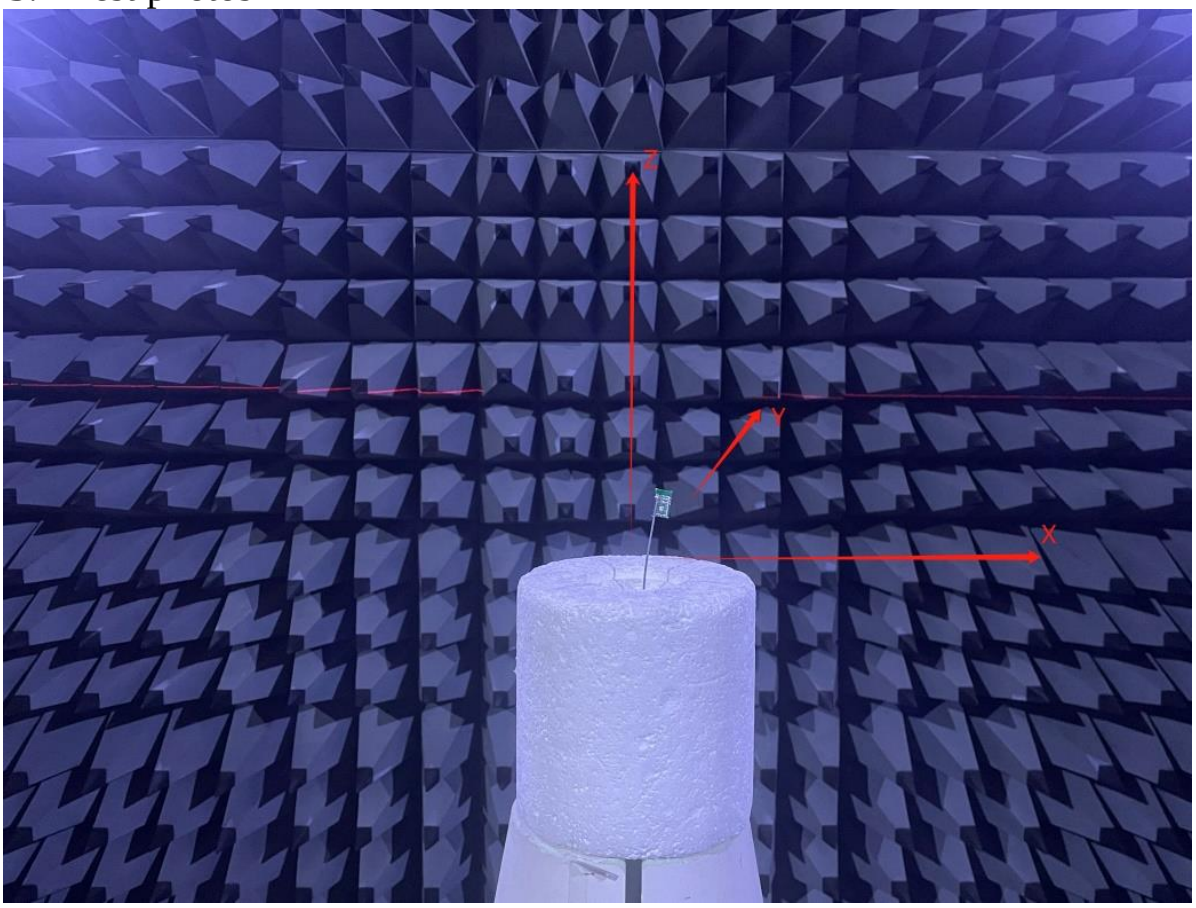


2.2 Test Method

Port 1 of Network analyzer connect to antenna of EUT. Record S21 value every 15 degree from 0 to 345 degree on Theta angle and 0 to 180 on Phi angle . Repeat process to each antenna of EUT.

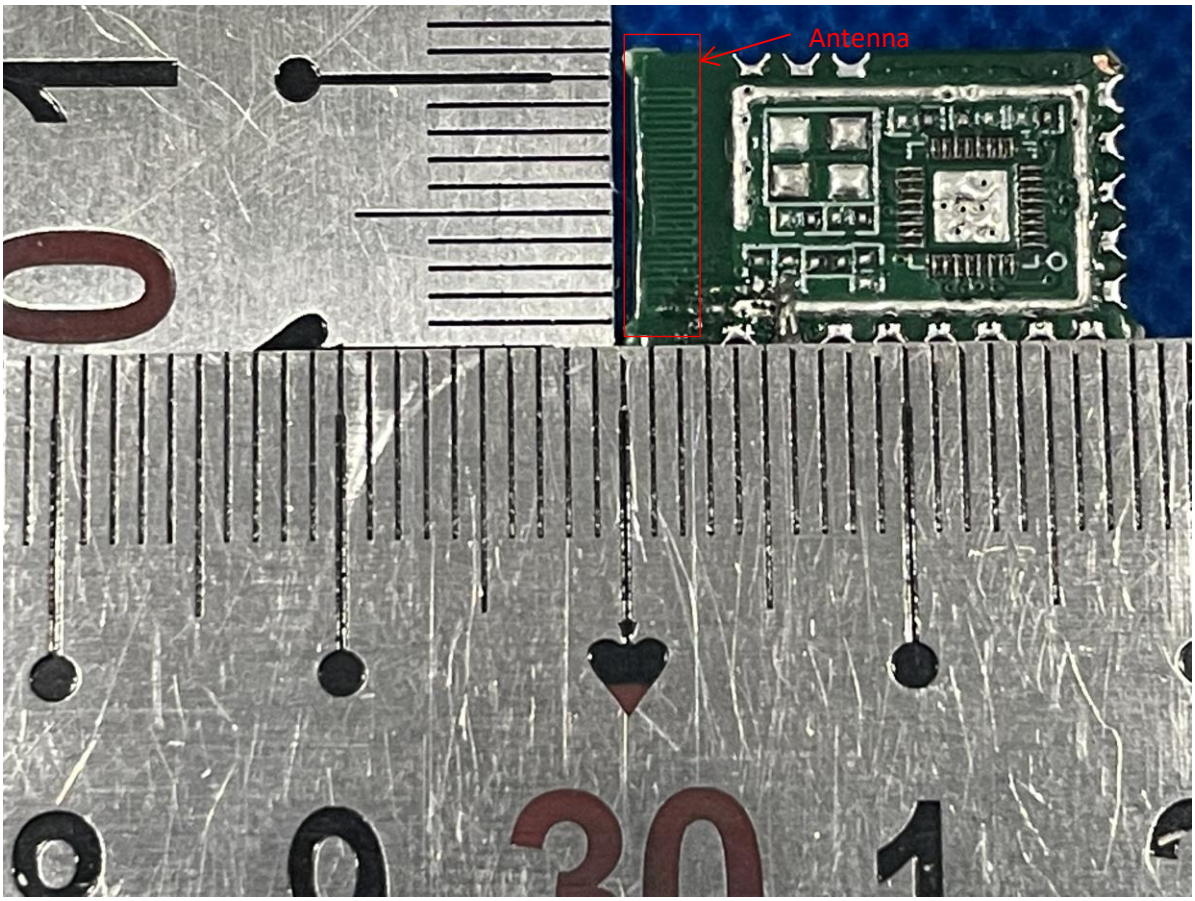
3.Test photos、Test Condition and DUT Antenna

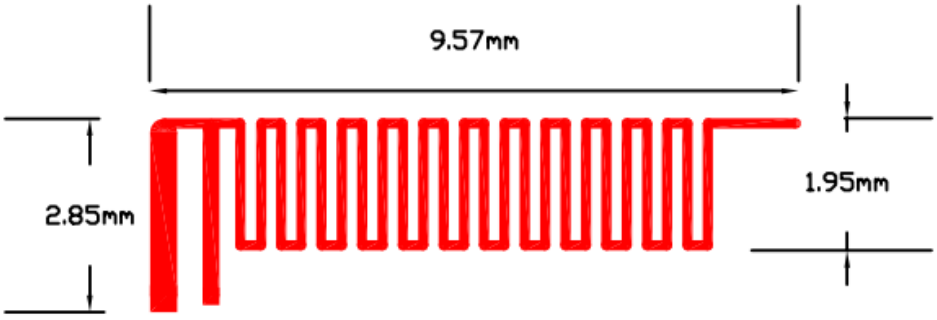
3.1 Test photos



Microwave anechoic chamber

3.2 DUT Antenna

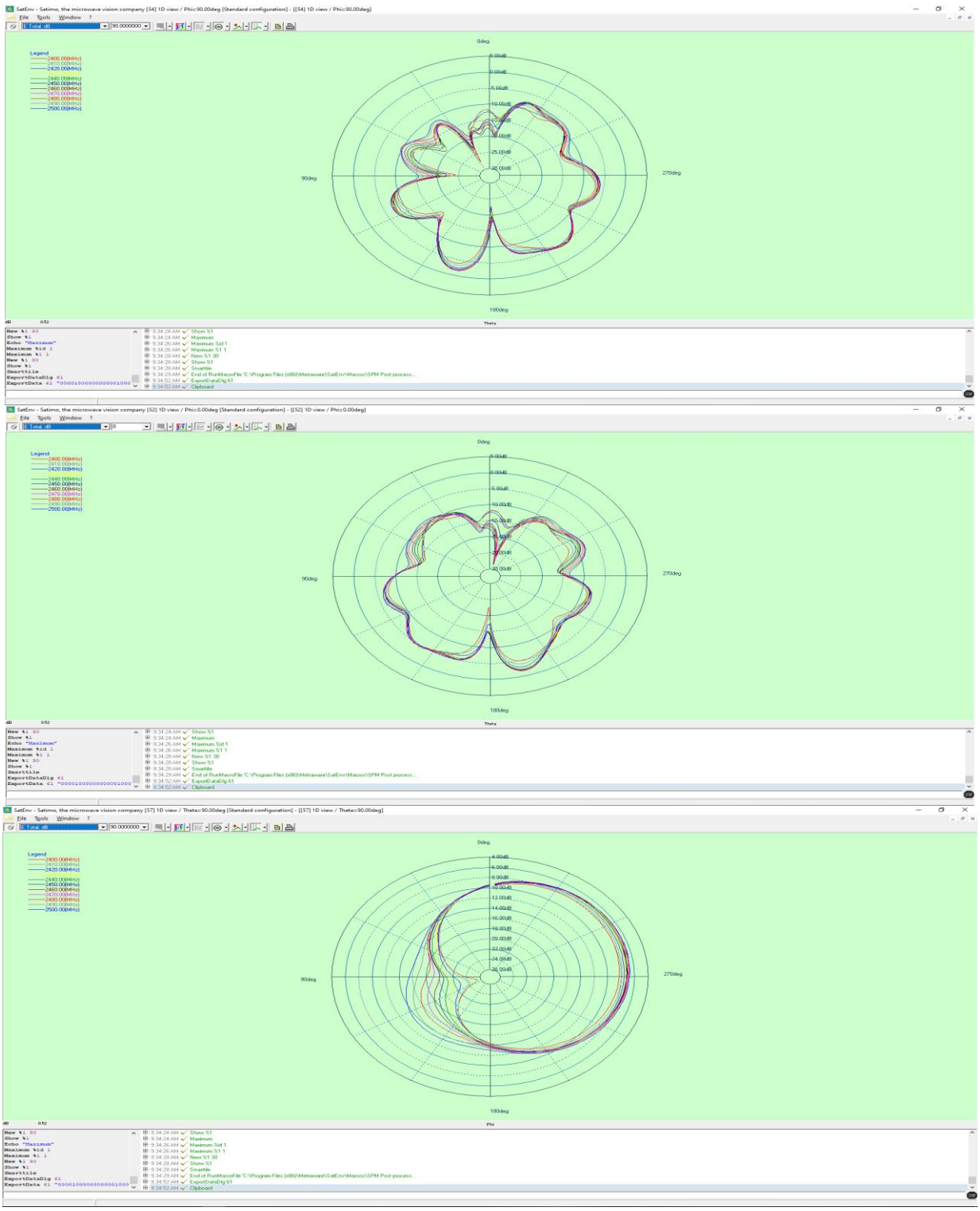




4.2 2D-3D Radiation pattern

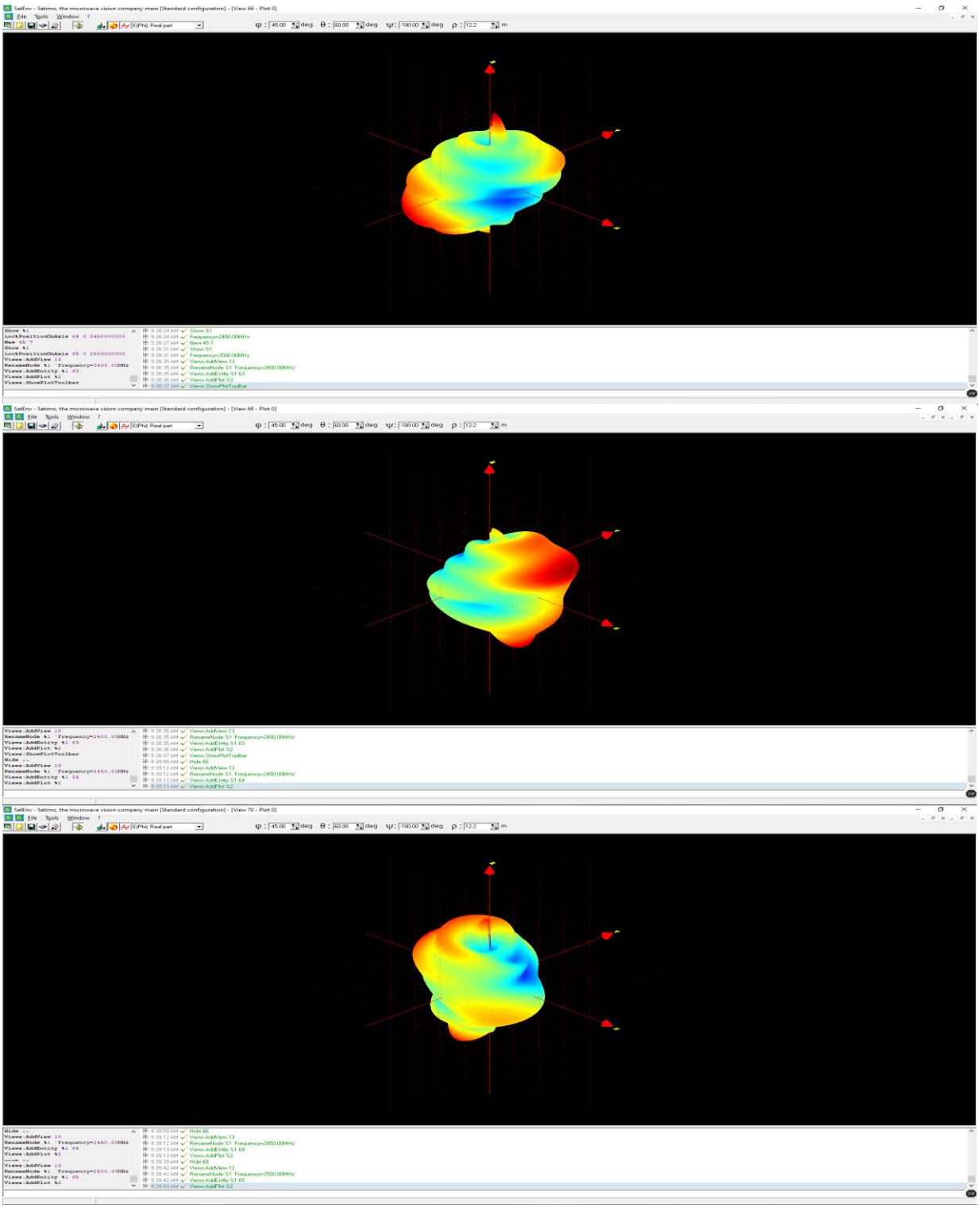
4.1 2D Radiation pattern test results

Antenna_2D



4.2 3D Radiation pattern test results

Antenna_3D



5.Peak Gain

5.1 Test results

Antenna_Peak Gain	
Frequency（MHz）	Peak_Gain . dBi
2400	-3.52746
2410	-2.85367
2420	-2.15516
2430	-1.78412
2440	-1.69437
2450	-1.55137
2460	-1.49915
2470	-1.37612
2480	-1.49079
2490	-1.57472
2500	-1.7318

STATEMENT

a) The test report applies only to the specific samples tested under conditions.

b) The test report is invalid without the Inspection Seal.

c) The test report is invalid without the signature of the test engineer, auditor, Approver.

d) The test report is invalid if it is altered or copied.

e) Partial replica is prohibited without permission of Shenzhen HAIYUN Testing Co., Ltd. Laboratory

f) The test results presented in this report is only valid on the tested samples.

g) Objections to this report should be submitted to the inspection organization in 15 days of receipting the report. It is not accepted if overdue.

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（**END OF REPORT**）